Drinking Water Surveillance Program

GRIMSBY WATER TREATMENT PLANT

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GRIMSBY
WATER TREATMENT PLANT

DRINKING WATER SURVEILLANCE PROGRAM

ANNUAL REPORT 1988

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EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

GRIMSBY WATER TREATMENT PLANT
1988 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 52 plants are being monitored.

The Grimsby Water Treatment Plant is a conventional treatment plant which treats water from Lake Ontario. The process consists of coagulation, flocculation, sedimentation, filtration and disinfection. Powdered activated carbon is added when necessary in the summer months to control taste and odour problems. This plant has a design capacity of 19 x 1000 m^3/day and serves a population of approximately 15,000.

Water samples of the raw and treated water from the plant and one site in the distribution system were taken on a monthly basis and analyzed for approximately 160 parameters. Parameters were divided into the following groups Bacteriological, Inorganic and Physical(Laboratory Chemistry, Field Chemistry and Metals) and Organics (Chloroaromatics, Chlorophenols, Pesticides and PCB, Phenolics, Polynuclear Aromatic Hydrocarbons, Specific Pesticides and Volatiles). Specific Pesticides and Chlorophenols were analysed in June and November only.

A summary of results is shown in Table 1.

Inorganic and Physical parameters (Laboratory Chemistry, Field Chemistry and Metals) were below applicable health related ODWOs.

Of approximately 110 Organic parameters tested for on a monthly basis, none exceeded health related guidelines.

During 1988 the DWSP sampling results indicated that the Grimsby Water Treatment Plant produced good quality water at the plant and this quality was maintained in the distribution system.

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP

SUMMARY TABLE BY SCAN

SCAN	RAW TESTS	RAW POSITIVE	RAW %POSITIVE	TREATED TESTS	TREATED POSITIVE	TREATED %POSITIVE	SITE 1 TESTS	SITE 1 POSITIVE	SITE 1 %POSITIVE
BACTERIOLOGICAL	39	34	87	43	9	20	41	16	39
CHEMISTRY (FLD)	34	34	100	70	68	97	91	91	100
CHEMISTRY (LAB)	246	205	83	246	174	70	401	333	83
METALS	288	175	60	288	135	46	544	308	54
CHLOROAROMATICS	168	0	0	168	0	0	154	0	0
CHLOROPHENOLS	12	0	0	12	0	0	.	.	.
PAH	204	0	0	204	0	0	.	.	.
PESTICIDES & PCB	396	0	0	396	0	0	375	0	0
PHENOLICS	12	5	41	12	2	16	.	.	.
SPECIFIC PESTICIDES	56	0	0	44	0	0	0	0	0
VOLATILES	315	1		314	47	14	314	47	14
TOTAL	1770	454		1797	435		1940	795	

NO HEALTH RELATED GUIDELINES OR LIMITS WERE EXCEEDED

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

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INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 52 plants are being monitored.

The DWSP was initiated in the Grimsby distribution system in February, 1987. Sampling, at the water treatment plant began in April, 1987. An annual report was published for 1987 (ISSN 0840-5174).

This report contains information and results for 1988.

PLANT DESCRIPTION

The Grimsby Water Treatment Plant is a conventional treatment plant which treats water from Lake Ontario. The process consists of coagulation, flocculation, sedimentation, filtration and disinfection. Powdered activated carbon was added when necessary

in the summer months to control taste and odour problems. When demand is high in the summer months a second intake is used along with three pressure filters. This plant has a rated capacity of 19 x 1000 m^3/day and flows on day of sampling ranging from 5.9 x 1000 m^3/day to 14.4 x 1000 m^3/day. The plant serves a population of approximately 15,000.

The plant location is shown in Figure 1. Plant process details, in a block schematic, are shown in Figure 2. General plant information is presented in Table 2.

METHODS

Water samples were obtained from three DWSP approved locations;

i) Plant Raw - The water originated from the raw water intake prior to the screens and was sampled through a stainless steel sample line.

ii) Plant Treated - The water originated at the highlift discharge after addition of all treatment chemicals and was sampled through a stainless steel sample line. The sample tap is located in the plant laboratory.

iii) Distribution System - Site 1 - The distance that this house is from the plant is unavailable. Water was sampled through copper plumbing.

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM

SITE LOCATION MAP

GRIMSBY WATER TREATMENT PLANT

FIGURE 2

GRIMSBY WATER TREATMENT PLANT

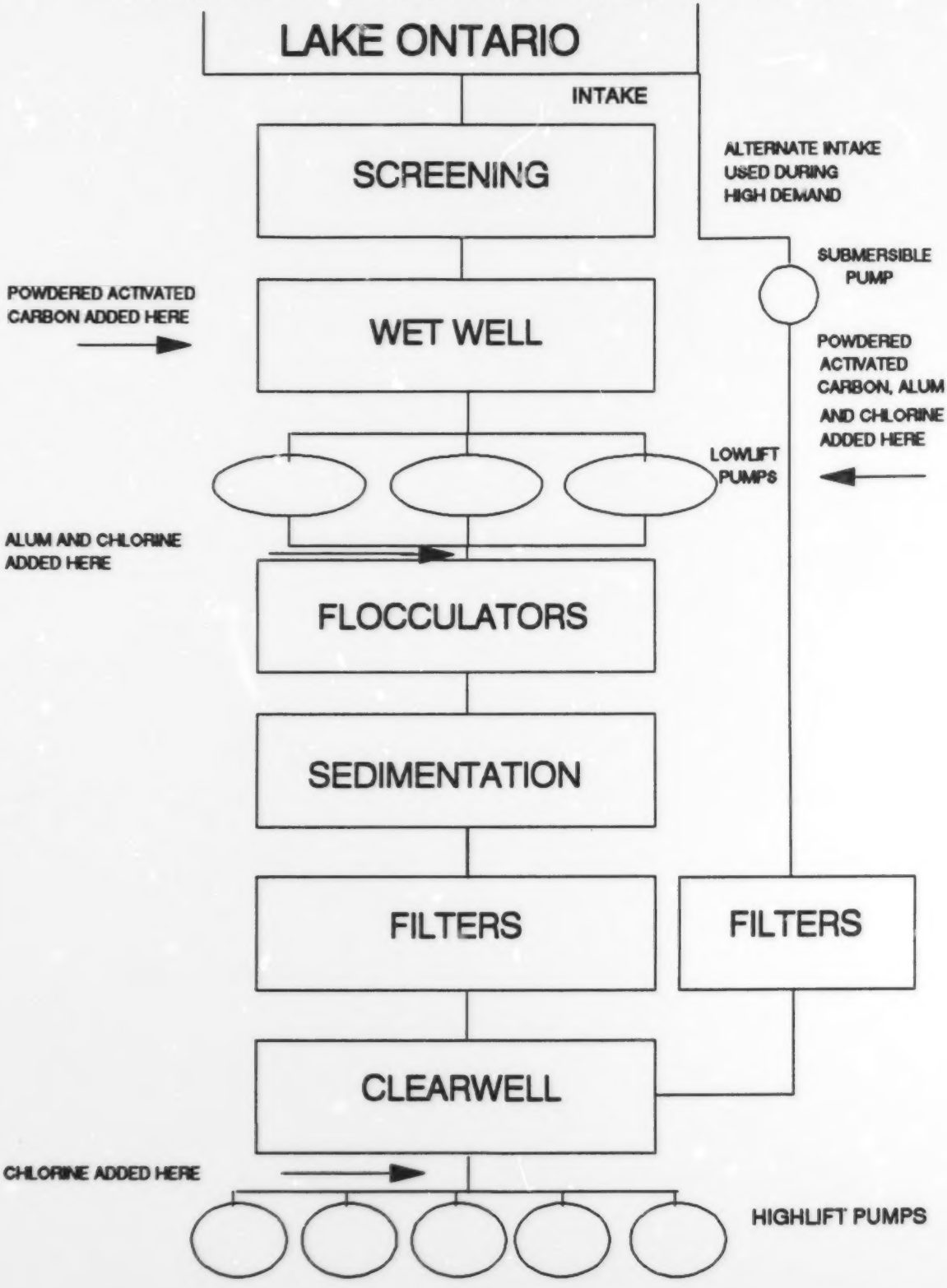

TABLE 2

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

GENERAL INFORMATION

GRIMSBY WATER TREATMENT PLANT

LOCATION:	ELIZABETH STREET GRIMSBY, ONTARIO (MAIL) RR1, FONTHILL ONTARIO L0S 1E0
SOURCE:	RAW WATER SOURCE - LAKE ONTARIO
RATED CAPACITY:	19 (1000 M3/DAY)
OPERATION:	MUNICIPAL
PLANT SUPERINTENDENT:	A. FORBES
MINISTRY REGION:	WEST CENTRAL
DISTRICT OFFICER:	MR. J. W. VOGT

MUNICIPALITY SERVED	POPULATION
GRIMSBY	15,000

Sample lines in the plant were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

At the distribution system location two types of samples were obtained: a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples are used to make an assessment of the amount by which the levels of inorganic compounds and metals may be changed on standing, due to leaching from (or deposition on), the plumbing system. The only analyses carried out on the standing samples therefore, are General Chemistry and Metals. The free flow sample represented fresh water from the distribution main that had been flowing at the sample tap for five minutes before being sampled.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. The retention time was calculated by dividing the volume of water between the two sampling points by the sample day flow. For example, if it was determined that the retention time within the plant was five hours then there would be a five hour interval between the raw and treated sampling. Similarly, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water from the plant.

Stringent DWSP sampling protocols were followed to ensure that all samples were taken in a uniform manner.

Sample day flows, treatment chemical dosages and Field Chemistry measurements were recorded on the day of sampling and were entered onto the DWSP data base as submitted.

RESULTS

The raw and treated water at the plant and one site in the distribution system were sampled monthly in 1988. Specific Pesticides and Chlorophenols were sampled in June and November only. Polynuclear Aromatic Hydrocarbons and Phenolics were only analysed in the raw and treated water at the plant. As a result of an unforeseen emergency the laboratory capacity was exceeded and analysis for volatiles could not be carried out when the samples were received. Since analysis for volatiles is no longer valid after four weeks of storage, volatile results for February are not available.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples analysed by parameter and by water type. The number of times that

a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 lists all parameters analysed in the DWSP.

Associated guidelines and detection limits are also supplied on tables 5 and 6. Parameters are listed alphabetically within each scan.

DISCUSSION

General

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWOs) as defined in the 1984 publictaion (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters, these are currently under review. When an ODWO is not available guidelines/limits from other

agencies are consulted. The Parameter Listing System (PALIS) recently published by the MOE (ISBN 0-7729-4461-X) catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

Although some of the parameters measured on DWSP may be present in the raw and treated water as a result of pollution, many of the compounds detected are naturally occurring or are treatment by-products.

Plant operational personnel address occurrences of taste and odour or biological water quality parameters. The DWSP does not assess these aspects of the water supply.

As stated under Results, traces do not indicate quantifiable results as defined by established MOE laboratory analytical reporting protocols. While they can be useful in trend analysis or confirmation of the presence of a specific contaminant that is repeatedly detected at these levels, the occasional finding of a trace level of a contaminant is not considered to be significant. **DISCUSSION OF GUIDELINES AND LIMITS THEREFORE, IS ONLY CONDUCTED ON POSITIVE RESULTS.**

Bacteriological

Positive results for the Bacteriology scan were present nine times

in the treated water and sixteen times in the Site 1 water. The positive parameters were Standard Plate Count and Total Coliform Background.

Standard Plate Count is a test used to supplement routine analysis for Coliform bacteria. The limit for Standard Plate Count (at 35°C after 48 hours) in the ODWOs is 500 organisms per mL (based on a geometric mean of 5 or more samples). High Standard Plate Counts were present in the June treated water sample. No samples contained bacteriological results over any applicable health related ODWOs.

Guidelines for bacteriological sampling and testing of a supply are developed to maintain a proper supervision of its bacteriological quality; the routine monitoring program usually requires the taking of multiple samples in a given system. Full interpretation of bacteriological quality cannot be made on the basis of single samples. Routine bacteriological monitoring, as outlined in the ODWOs is carried out by the operating authority.

Inorganic and Physical Parameters

Laboratory and Field Chemistry

The results for the Laboratory Chemistry and Field Chemistry scans were below applicable health related ODWOs.

The Total Ammonium levels for April, 0.18 mg/L in the raw water,

0.15 mg/L in the treated water and 0.13 mg/L in the Site 1 water where above the European Economic Community's (EEC) aesthetic guideline of 0.05 mg/L. This is probably as a result of naturally occurring ammonia (eg. from sewage pollution). While the EEC has this aesthetic guideline of .05 mg/L, the Maximum Admissible Concentration is .50 mg/L and is set as a result of the concern for potential sewage pollution and its detection. The presence of ammonia is also reflected in the higher level of combined chlorine in the April treated water and a corresponding decrease in the free chlorine.

It is desirable that the Temperature of drinking water be less than 15°C; the palatability of water is enhanced by its coolness. A temperature below 15°C will tend to reduce the growth of nuisance organisms and hence minimize associated taste, colour, odour and corrosion problems. The temperature of the delivered water may increase in the distribution system due to the warming effect of the soil in late summer and fall and/or as a result of higher temperatures in the source water. The desired ODWO was exceeded five times in the treated water and free flow distributed water.

The ODWO indicates that a hardness level of between 80 and 100 mg/L as calcium carbonate for domestic waters provides an acceptable balance between corrosion and incrustation. Water supplies with a hardness greater than 200 mg/L are considered poor and would possess a tendency to form scale deposits and result in excessive

soap consumption. Hardness levels for the Grimsby water ranged from 134 to 146 mg/L as $CaCO_3$.

The Langelier Index is used extensively in estimating the corrosion potential of water. An increasingly negative index indicates the increasing possibility of corrosion. It is considered sound engineering practice to maintain a slightly positive Langelier Index. The Langelier Index for Grimsby is consistently positive.

Metals

The results reported for the Metals scan were below any applicable health related ODWOs.

Copper, Manganese, Lead and Iron levels were lower in the treated water as compared to the raw. This is a result of the treatment process. The addition of Alum as a coagulant to the raw water and the resulting coagulation/settling process has been shown to reduce the levels of most metals.

Elevated levels of Copper, Lead and Zinc were detected in the standing samples as compared to the free flow distribution samples thus, indicating that these metals were leached from the household plumbing as the water stood overnight. Although the Langelier Index indicates minimal potential for corrosion some metals will be leached in standing samples in most supplies.

Mercury levels in the raw and treated water samples were much higher in the January, February and March samples as compared to other months however the ODWO of 1.0 ug/L was not exceeded. The distribution system sample results were consistently low. Over the past two years in the DWSP it has been observed that potassium dichromate, a preservative for mercury samples, has a limited shelf-life and may show false positives for the presence of Mercury. As the preservative deteriorates Mercury levels may increase as a result of interferences, the preservative was replaced in April. As a result, many of the elevated values of mercury provided in the data tables are greater than the level actually present.

At present, there is no evidence that Aluminum is physiologically harmful and no health limit for drinking water has been specified. The measure of residual Aluminum in the treated water is important to indicate the efficiency of the treatment process. The ODWOs indicate that a useful guideline is to maintain a residual below 100 ug/L as Al in the water leaving the plant to avoid problems in the distribution system. Aluminum values exceeded the ODWO operational guideline three times in the treated water.

Organic Parameters

Chloroaromatics

The results of the Chloroaromatics scan showed that no

chloroaromatics were detected.

Chlorophenols

The results of the Chlorophenols scan showed that no parameters were detected.

Pesticides and PCB (Polychlorinated Biphenyls)

The results of the Pesticides and PCB scan showed that no PCBs were detected and that two pesticides were detected:

Alpha BHC

Lindane

There are several isomers of BHC (Benzene Hexachloride); gamma BHC is the active ingredient in the pesticide Lindane, while alpha BHC is the predominant isomer found in surface waters from the Great Lakes Basin.

Alpha BHC was detected at trace levels, seven times in the raw water, nine times in the treated water and eight times in the Site 1 water.

Lindane was detected at trace levels, four times in the raw water, twice in the treated water and four times in the Site 1 water.

Specific Pesticides

Results of the Specific Pesticides scan showed that no Specific

Pesticides were detected.

Phenolics

The maximum desirable concentration of phenolic substances in drinking water is 2.0 ug/L. This limit has been set primarily to prevent the occurrence of undesirable tastes and odours, particularly in chlorinated water. Phenolics were detected in the raw water five times at quantifiable levels ranging from 1.0 ug/L to 2.0 ug/L and twice in the treated water at 1.0 and 1.2 ug/L. Phenolics were detected at trace levels, five times in the raw water and eight times in the treated water. Phenolic compounds are present in the aquatic environment as a result of natural and/or industrial processes.

Polynuclear Aromatic Hydrocarbons (PAHs)

Results of the PAH scan showed that no PAHs were detected.

Volatiles

The results of the Volatiles scan showed that nine parameters, other than Trihalomethanes(THMs), were detected:

Benzene

Toluene

Ethylbenzene

Para and Meta-Xylene

Ortho-Xylene

Styrene

Methylene Chloride

1,1,1-Trichloroethane

Benzene was detected at trace levels, once in the raw water, three times in the treated water and once in the Site 1 water.

Toluene was detected at trace levels, six times in the treated water and four times in the Site 1 water. The detection of toluene at low, trace levels is a laboratory artifact derived from the analytical methodology. The purge-and-trap analytical technique depends on the purging of the volatile organics in the water sample with helium gas onto a Tenax trapping column. The volatile materials are subsequently thermally desorbed, separated and quantified. Tenax, a toluene-like polymeric material, tends to decompose sporadically upon heating into toluene and other aromatic componenets (ethylbenzene and xylene) giving instrument blanks in the order of 0.05 ug/L.

The detected trace levels of Styrene are also considered to be laboratory artifacts due to the outgassing of monomeric styrene from the polystyrene shipping containers. The sporadic background levels from this source are in the order of 0.05 ug/L.

Ethylbenzene was detected at trace levels, twice in the raw water, ten times in the treated water and eight times in the Site 1 water.

Para and Meta-Xylene are reported as one compound, M-Xylene; although P-Xylene if it is present can be detected separately. P-Xylene was detected at a trace level once in the treated water. M-Xylene was detected at trace levels, three times in the treated water and Site 1 water.

Ortho-Xylene (O-Xylene) was detected at trace levels, once in the raw water, four times in the treated water and twice in the Site 1 water.

The volatiles listed above are typically found on an occasional basis at other water supplies included on the DWSP usually at trace levels.

Methylene Chloride was reported to be present in all of the January samples. Laboratory staff considered these values to be unreliable due to suspected contamination as per the remark 'UCS'.

1,1,1-Trichloroethane was detected at a trace level, in one Site 1 sample.

Trihalomethanes (THMs) are known to be produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised of Chloroform, Chlorodibromomethane and Dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs.

Chloroform, Chlorodibromomethane, Dichlorobromomethane and total THMs were always detected in all treated waters. Bromoform was detected at trace levels in all but the April samples. All Total THM occurrences, ranging from 5.7 ug/L to 50.15 ug/L were well below the ODWO of 350 ug/L. The low levels detected in April may reflect the low free chlorine residual found in these samples.

CONCLUSIONS

The Grimsby Water Treatment Plant for the sample year of 1988, as in 1987, produced good quality water and this quality was maintained in the distribution system.

No health related guidelines, for organic or inorganic parameters were exceeded during 1987 or 1988.

RECOMMENDATIONS

Two recommendations can be made as follows;

1) The reason for the high total ammonia levels in April should be investigated.

2) A second distribution system site should be added.

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP SAMPLE DAY CONDITIONS FOR 1988

	SAMPLE DAY CONDITIONS		TREATMENT CHEMICAL DOSAGES (MG/L)				
			TASTE & ODOUR	PRE-CHLORINATION	COAGULATION		POST-CHLORINATION
			ACTIVATED CARBON POWDER	CHLORINE	ALUM LIQUID	POLYALUMINUM SULPHATE	CHLORINE
DATE	RETENTION TIME(HRS)	FLOW (1000M3)					
JAN 19	8.0	6.0	.	1.21	8.79	.	.25
FEB 16	5.0	6.4	.84	1.24	26.60	.	.12
MAR 22	8.5	5.9	.46	1.15	22.40	.	.23
APR 19	5.4	6.3	.97	1.13	9.69	.	.24
MAY 17	5.4	6.5	.56	1.53	8.86	.	.21
JUN 21	5.0	14.4	.53	1.03	.	5.00	.60
JUL 19	4.5	7.0	.97	2.72	20.27	.	.45
AUG 16	6.5	6.8	.92	2.05	16.30	.	.25
SEP 20	5.0	7.5	1.00	2.01	12.00	.	.21
OCT 18	5.4	7.2	.	2.07	8.43	.	.16
NOV 22	.0	.0	.	1.57	22.68	.	.16
DEC 13	8.0	6.2	.	.22	21.44	.	.05

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
BACTERIOLOGICAL	AEROMONAS SP	.	.	.	.	.	.	1	0	0
	E. COLI P/A	.	.	.	.	.	.	1	0	0
	FECAL COLIFORM MF	11	6	0	.	.	.	.	.	.
	FECAL COLIFORM	.	.	.	.	.	.	1	0	0
	STANDRD PLATE CNT MF	6	6	0	11	8	0	9	9	0
	P/A BOTTLE	.	.	.	8	0	0	7	1	0
	STAPH AUREUS	.	.	.	.	.	.	1	0	0
	COLIFORM	.	.	.	.	.	.	1	0	0
	TOTAL COLIFORM MF	11	11	0	12	0	0	10	0	0
	T COLIFORM BCKGRD MF	11	11	0	12	1	0	10	6	0
*TOTAL SCAN BACTERIOLOGICAL		39	34	0	43	9	0	41	16	0
*TOTAL GROUP BACTERIOLOGICAL		39	34	0	43	9	0	41	16	0
CHEMISTRY (FLD)	FLD CHLORINE (COMB)	.	.	.	12	12	0	10	10	0
	FLD CHLORINE FREE	.	.	.	12	11	0	10	10	0
	FLD CHLORINE (TOTAL)	.	.	.	12	12	0	11	11	0
	FLD PH	11	11	0	11	11	0	24	24	0
	FLD TEMPERATURE	11	11	0	11	10	0	24	24	0
	FLD TURBIDITY	12	12	0	12	12	0	12	12	0
*TOTAL SCAN CHEMISTRY (FLD)		34	34	0	[illegible]	68	0	91	91	0
CHEMISTRY (LAB)	ALKALINITY	12	12	0	12	12	0	22	22	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHEMISTRY (LAB)	CALCIUM	12	12	0	12	12	0	23	23	0
	CYANIDE	12	0	0	12	0	0	11	0	0
	CHLORIDE	12	12	0	12	12	0	21	21	0
	COLOUR	12	2	10	12	0	10	22	0	21
	CONDUCTIVITY	12	12	0	12	12	0	22	22	0
	FLUORIDE	12	12	0	12	12	0	22	21	1
	HARDNESS	12	12	0	12	12	0	23	23	0
	IONCAL	12	6	0	12	6	0	24	12	0
	LANGELIERS INDEX	12	12	0	12	12	0	22	22	0
	MAGNESIUM	12	12	0	12	12	0	23	23	0
	SODIUM	12	12	0	12	12	0	23	23	0
	AMMONIUM TOTAL	12	9	3	12	7	5	22	16	6
	NITRITE	12	10	1	12	3	8	22	6	14
	TOTAL NITRATES	12	12	0	12	12	0	22	22	0
	NITROGEN TOT KJELD	12	12	0	12	12	0	21	21	0
	PH	12	12	0	12	12	0	22	22	0
	PHOSPHORUS FIL REACT	12	5	6	12	0	9	.	.	.
	PHOSPHORUS TOTAL	12	11	1	12	0	8	.	.	.
	SULPHATE	6	6	0	6	6	0	12	12	0
	TURBIDITY	12	12	0	12	8	4	22	22	0
*TOTAL SCAN CHEMISTRY (LAB)		246	205	21	246	174	44	401	333	42
METALS	SILVER	12	0	2	12	0	4	24	0	12

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY

SUMMARY TABLE OF RESULTS (1988)

		RAW			TREATED			SITE 1		
SCAN	PARAMETER	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
METALS	ALUMINUM	12	12	0	12	12	0	24	24	0
	ARSENIC	12	3	9	12	2	9	24	1	22
	BARIUM	12	12	0	12	12	0	24	24	0
	BORON	12	12	0	12	12	0	24	24	0
	BERYLLIUM	12	0	5	12	0	6	24	0	9
	CADMIUM	12	0	2	12	0	2	24	0	5
	COBALT	12	2	10	12	1	11	24	0	23
	CHROMIUM	12	5	7	12	4	8	24	10	14
	COPPER	12	12	0	12	3	9	24	24	0
	IRON	12	7	5	12	0	6	24	1	22
	MERCURY	12	5	6	12	5	6	12	3	6
	MANGANESE	12	12	0	12	7	4	24	24	0
	MOLYBDENUM	12	12	0	12	12	0	24	24	0
	NICKEL	12	4	8	12	3	8	24	6	16
	LEAD	12	12	0	12	2	7	24	20	4
	ANTIMONY	12	12	0	12	11	1	24	23	1
	SELENIUM	12	0	9	12	0	11	24	0	23
	STRONTIUM	12	12	0	12	12	0	24	24	0
	TITANIUM	12	12	0	12	10	2	24	20	4
	THALLIUM	12	0	5	12	0	7	24	0	11
	URANIUM	12	12	0	12	8	4	24	16	8
	VANADIUM	12	5	7	12	8	4	24	16	8
	ZINC	12	12	0	12	11	1	24	24	0
*TOTAL SCAN METALS		288	175	75	288	135	110	564	308	188
*TOTAL GROUP INORGANIC & PHYSICAL		568	414	96	604	377	154	1056	732	230

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHLOROAROMATICS	HEXACHLOROBUTADIENE	12	0	0	12	0	0	11	0	0
	123 TRICHLOROBENZENE	12	0	0	12	0	0	11	0	0
	1234 T-CHLOROBENZENE	12	0	0	12	0	0	11	0	0
	1235 T-CHLOROBENZENE	12	0	0	12	0	0	11	0	0
	124 TRICHLOROBENZENE	12	0	0	12	0	0	11	0	0
	1245 T-CHLOROBENZENE	12	0	0	12	0	0	11	0	0
	135 TRICHLOROBENZENE	12	0	0	12	0	0	11	0	0
	HCB	12	0	0	12	0	0	11	0	0
	HEXACHLOROETHANE	12	0	0	12	0	0	11	0	0
	OCTACHLOROSTYRENE	12	0	0	12	0	0	11	0	0
	PENTACHLOROBENZENE	12	0	0	12	0	0	11	0	0
	236 TRICHLOROTOLUENE	12	0	0	12	0	0	11	0	0
	245 TRICHLOROTOLUENE	12	0	0	12	0	0	11	0	0
	26A TRICHLOROTOLUENE	12	0	0	12	0	0	11	0	0
*TOTAL SCAN CHLOROAROMATICS		168	0	0	168	0	0	154	0	0
CHLOROPHENOLS	234 TRICHLOROPHENOL	2	0	0	2	0	0	.	.	.
	2345 T-CHLOROPHENOL	2	0	0	2	0	0	.	.	.
	2356 T-CHLOROPHENOL	2	0	0	2	0	0	.	.	.
	245-TRICHLOROPHENOL	2	0	0	2	0	0	.	.	.
	246-TRICHLOROPHENOL	2	0	0	2	0	0	.	.	.
	PENTACHLOROPHENOL	2	0	0	2	0	0	.	.	.
*TOTAL SCAN CHLOROPHENOLS		12	0	0	12	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PAH	PHENANTHRENE	12	0	0	12	0	0	.	.	.
	ANTHRACENE	12	0	0	12	0	0	.	.	.
	FLUORANTHENE	12	0	0	12	0	0	.	.	.
	PYRENE	12	0	0	12	0	0	.	.	.
	BENZO(A)ANTHRACENE	12	0	0	12	0	0	.	.	.
	CHRYSENE	12	0	0	12	0	0	.	.	.
	DIMETH. BENZ(A)ANTHR	12	0	0	12	0	0	.	.	.
	BENZO(E) PYRENE	12	0	0	12	0	0	.	.	.
	BENZO(J) FLUORANTHEN	0	0	0	0	0	0	.	.	.
	BENZO(B) FLUORANTHEN	12	0	0	12	0	0	.	.	.
	PERYLENE	12	0	0	12	0	0	.	.	.
	BENZO(K) FLUORANTHEN	12	0	0	12	0	0	.	.	.
	BENZO(A) PYRENE	12	0	0	12	0	0	.	.	.
	BENZO(G,H,I) PERYLEN	12	0	0	12	0	0	.	.	.
	DIBENZO(A,H) ANTHRAC	12	0	0	12	0	0	.	.	.
	INDENO(1,2,3-C,D) PY	12	0	0	12	0	0	.	.	.
	BENZO(B) CHRYSENE	12	0	0	12	0	0	.	.	.
	ANTHANTHRENE	0	0	0	0	0	0	.	.	.
	CORONENE	12	0	0	12	0	0	.	.	.
*TOTAL SCAN PAH		204	0	0	204	0	0	0	0	0
PESTICIDES & PCB	ALDRIN	12	0	0	12	0	0	11	0	0
	ALPHA BHC	12	0	7	12	0	9	11	0	8

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY

SUMMARY TABLE OF RESULTS (1988)

		RAW			TREATED			SITE 1		
SCAN	PARAMETER	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	BETA BHC	12	0	0	12	0	0	11	0	0
	LINDANE	12	0	4	12	0	2	11	0	4
	ALPHA CHLORDANE	12	0	0	12	0	0	11	0	0
	GAMMA CHLORDANE	12	0	0	12	0	0	11	0	0
	DIELDRIN	12	0	0	12	0	0	11	0	0
	METHOXYCHLOR	12	0	0	12	0	0	11	0	0
	ENDOSULFAN I	12	0	0	12	0	0	11	0	0
	ENDOSULFAN II	12	0	0	12	0	0	11	0	0
	ENDRIN	12	0	0	12	0	0	11	0	0
	ENDOSULFAN SULPHATE	12	0	0	12	0	0	11	0	0
	HEPTACHLOR EPOXIDE	12	0	0	12	0	0	11	0	0
	HEPTACHLOR	12	0	0	12	0	0	11	0	0
	MIREX	12	0	0	12	0	0	11	0	0
	OXYCHLORDANE	12	0	0	12	0	0	11	0	0
	OPDDT	12	0	0	12	0	0	11	0	0
	PCB	12	0	0	12	0	0	11	0	0
	DDD	12	0	0	12	0	0	11	0	0
	PPDDE	12	0	0	12	0	0	11	0	0
	PPDDT	12	0	0	12	0	0	11	0	0
	AMETRINE	12	0	0	12	0	0	12	0	0
	ATRAZINE	12	0	0	12	0	0	12	0	0
	ATRATONE	12	0	0	12	0	0	12	0	0
	CYANAZINE	12	0	0	12	0	0	12	0	0
	DES ETHYL ATRAZINE	6	0	0	6	0	0	6	0	0
	DES ETHYL SIMAZINE	6	0	0	6	0	0	6	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	PROMETONE	12	0	0	12	0	0	12	0	0
	PROPAZINE	12	0	0	12	0	0	12	0	0
	PROMETRYNE	12	0	0	12	0	0	12	0	0
	METRIBUZIN	12	0	0	12	0	0	12	0	0
	SIMAZINE	12	0	0	12	0	0	12	0	0
	ALACHLOR	12	0	0	12	0	0	12	0	0
	METOLACHLOR	12	0	0	12	0	0	12	0	0
*TOTAL SCAN PESTICIDES & PCB		396	0	11	396	0	11	375	0	12
PHENOLICS	PHENOLICS	12	5	5	12	2	8	.	.	.
*TOTAL SCAN PHENOLICS		12	5	5	12	2	8	0	0	0
SPECIFIC PESTICIDES	TOXAPHENE	0	0	0	0	0	0	0	0	0
	2,4,5-T	2	0	0	2	0	0	.	.	.
	2,4-D	2	0	0	2	0	0	.	.	.
	2,4-DB	2	0	0	2	0	0	.	.	.
	2,4 D PROPIONIC ACID	2	0	0	2	0	0	.	.	.
	DICAMBA	2	0	0	2	0	0	.	.	.
	PICHLORAM	0	0	0	0	0	0	.	.	.
	SILVEX	2	0	0	2	0	0	.	.	.
	DIAZINON	2	0	0	1	0	0	.	.	.

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
SPECIFIC PESTICIDES	DICHLOROVOS	2	0	0	1	0	0	.	.	.
	CHLORPYRIFOS	2	0	0	1	0	0	.	.	.
	ETHION	2	0	0	1	0	0	.	.	.
	AZINPHOS-METHYL	0	0	0	0	0	0	.	.	.
	MALATHION	2	0	0	1	0	0	.	.	.
	MEVINPHOS	2	0	0	1	0	0	.	.	.
	METHYL PARATHION	2	0	0	1	0	0	.	.	.
	METHYLTRITHION	2	0	0	1	0	0	.	.	.
	PARATHION	2	0	0	1	0	0	.	.	.
	PHORATE	2	0	0	1	0	0	.	.	.
	RELDAN	2	0	0	1	0	0	.	.	.
	RONNEL	2	0	0	1	0	0	.	.	.
	AMINOCARB	0	0	0	0	0	0	.	.	.
	BENOMYL	2	0	0	2	0	0	.	.	.
	BUX	2	0	0	2	0	0	.	.	.
	CARBOFURAN	2	0	0	2	0	0	.	.	.
	CICP	2	0	0	2	0	0	.	.	.
	DIALLATE	2	0	0	2	0	0	.	.	.
	EPTAM	2	0	0	2	0	0	.	.	.
	IPC	2	0	0	2	0	0	.	.	.
	PROPOXUR	2	0	0	2	0	0	.	.	.
	CARBARYL	2	0	0	2	0	0	.	.	.
	BUTYLATE	2	0	0	2	0	0	.	.	.
*TOTAL SCAN SPECIFIC PESTICIDES		56	0	0	44	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
VOLATILES	BENZENE	11	0	1	11	0	3	11	0	1
	TOLUENE	11	0	0	11	2	4	11	2	2
	ETHYLBENZENE	11	0	2	11	0	10	11	0	8
	P-XYLENE	11	0	0	10	0	1	10	0	0
	M-XYLENE	11	0	0	11	1	2	11	0	3
	O-XYLENE	11	0	1	11	0	4	11	0	2
	STYRENE	3	0	2	3	0	3	3	1	1
	1,1 DICHLOROETHYLENE	11	0	0	11	0	0	11	0	0
	METHYLENE CHLORIDE	11	1	0	11	1	0	11	1	0
	T1,2DICHLOROETHYLENE	11	0	0	11	0	0	11	0	0
	1,1 DICHLOROETHANE	11	0	0	11	0	0	11	0	0
	CHLOROFORM	11	0	1	11	11	0	11	11	0
	111, TRICHLOROETHANE	11	0	0	11	0	0	11	0	1
	1,2 DICHLOROETHANE	11	0	0	11	0	0	11	0	0
	CARBON TETRACHLORIDE	11	0	0	11	0	0	11	0	0
	1,2 DICHLOROPROPANE	11	0	0	11	0	0	11	0	0
	TRICHLOROETHYLENE	11	0	0	11	0	0	11	0	0
	DICHLOROBROMOMETHANE	11	0	0	11	11	0	11	11	0
	112 TRICHLOROETHANE	11	0	0	11	0	0	11	0	0
	CHLORODIBROMOMETHANE	11	0	0	11	10	1	11	10	1
	T-CHLOROETHYLENE	11	0	0	11	0	0	11	0	0
	BROMOFORM	11	0	0	11	0	10	11	0	10
	1122 T-CHLOROETHANE	11	0	0	11	0	0	11	0	0
	CHLOROBENZENE	11	0	0	11	0	0	11	0	0
	1,4 DICHLOROBENZENE	11	0	0	11	0	0	11	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
VOLATILES	1,3 DICHLOROBENZENE	11	0	0	11	0	0	11	0	0
	1,2 DICHLOROBENZENE	11	0	0	11	0	0	11	0	0
	TRIFLUOROCHLOROTOLUE	4	0	0	4	0	0	4	0	0
	ETHLYENE DIBROMIDE	11	0	0	11	0	0	11	0	0
	TOTL TRIHALOMETHANES	11	0	1	11	11	0	11	11	0
*TOTAL SCAN VOLATILES		315	1	8	314	47	38	314	47	29
*TOTAL GROUP ORGANIC		1163	6	24	1150	49	57	843	47	41
TOTAL		1770	454	120	1797	435	211	1940	795	271

KEY TO TABLE 5 and 6

A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
1. Maximum Acceptable Concentration (MAC)
1+. MAC for Total Trihalomethanes
1*. MAC for Bacteriological Analyses
Poor water quality is indicated when :
- total coliform counts > 0 < 5
- P/A Bottle Test is present after 48 hours
- Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
- Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
- Standard Plate Count should not exceed 500 organisms per ml at 35 ^{0}C within 48 hours
2. Interim Maximum Acceptable Concentration (IMAC)
3. Maximum Desirable Concentration (MDC)
4. Aesthetic or Recommended Operational Guideline
- hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness >200 mg/L are considered poor and those in excess of 500 mg/L are unacceptable.

B HEALTH & WELFARE CANADA (H&W)
1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO) (for xylenes, the AO is a total)

C WORLD HEALTH ORGANIZATION (WHO)
1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria

F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)

G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

H USSR MAXIMUM PERMISSIBLE CONCENTRATION

I NEW YORK STATE AMBIENT WATER GUIDELINE

N/A NONE AVAILABLE

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!AW	No Data: Analysis Withdrawn
!CR	No Data: Could Not Confirm By Reanalysis
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!QU	No Data: Quality Control Unacceptable
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
!TX	No Data: Time Expired
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only

PPS	Test Performed On Preserved Sample
RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UAL	Unreliable: Sample Age Exceeds Normal Limit
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours
T# (T06)	Result Taken After # Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
BACTERIOLOGICAL				
AEROMONAS SP ( )		DET'N LIMIT = N/A		GUIDELINE = 0 (A1)
FEB	.	.	.	0
E. COLI P/A ( )		DET'N LIMIT = N/A		GUIDELINE = N/A
FEB	.	.	.	0
FECAL COLIFORM MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = 0 (A1)
JAN	0	.	.	.
FEB	2	.	.	.
MAR	0	.	.	.
APR	0	.	.	.
JUN	0	.	.	.
JUL	15	.	.	.
AUG	59	.	.	.
SEP	1 T48	.	.	.
OCT	3 T48	.	.	.
NOV	11 T48	.	.	.
DEC	0 T48	.	.	.
FECAL COLIFORM ( )		DET'N LIMIT = N/A		GUIDELINE = 0 (A1)
FEB	.	.	.	0
STANDRD PLATE CNT MF (CT/ML)		DET'N LIMIT = 0		GUIDELINE = 500/ML (A1)
JAN	IAW	IAW	.	IAW
FEB	225	6	.	2
MAR	51	1	.	9
APR	1300	1	.	150
MAY	.	18	.	166
JUN	900	2400 >	.	.
JUL	2400 >	3	.	490
AUG	13000	240	.	42
SEP	.	5 <=>	.	.
OCT	.	175 T48	.	141 T24
NOV	.	2 <=>	.	122 T24
DEC	.	1 <=>	.	230 T24
P/A BOTTLE ( )		DET'N LIMIT = 0		GUIDELINE = 0 (A1*)
JAN	.	0	.	0
FEB	.	0	.	1

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
MAR	.	0	.	0
APR	.	0	.	0
MAY	.	0	.	0
JUN	.	0	.	.
JUL	.	0	.	0
AUG	.	0	.	0
STAPH AUREUS ( )		DET'N LIMIT = N/A		GUIDELINE = 0 (A1)
FEB	.	.	.	0
COLIFORM ( )		DET'N LIMIT = N/A		GUIDELINE = 0 (A1)
FEB	.	.	.	0
TOTAL COLIFORM MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = 5/100ML(A1)
JAN	40 A3C	0	.	0
FEB	132	0	.	0
MAR	22	0	.	0
APR	12 A3C	0	.	0
MAY	.	0	.	0
JUN	145 A3C	0	.	.
JUL	380 A3C	0	.	0
AUG	1100 A3C	0	.	0
SEP	218 A3C	0 T48	.	.
OCT	340 A3C	0 T48	.	0 T24
NOV	800 A3C	0 T48	.	0 T24
DEC	4 T48	0 T48	.	0 T24
T COLIFORM BCKGRD MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = N/A
JAN	34000	0	.	550
FEB	312	0	.	0
MAR	78	0	.	3
APR	5000	0	.	0
MAY	.	0	.	2400 >
JUN	1200	6	.	.
JUL	70000	0	.	2
AUG	46000	0	.	0
SEP	1160 A3C	0 T48	.	.
OCT	9400 A3C	0 T48	.	0 T24
NOV	28000 A3C	0 T48	.	1 T24
DEC	212 T48	0 T48	.	11 T24

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
CHEMISTRY (FLD)				
FLD CHLORINE (COMB) ( )		**DET'N LIMIT = N/A**		**GUIDELINE = N/A**
JAN	.	.090	.	.050
FEB	.	.080	.	.020
MAR	.	.070	.	.060
APR	.	.800	.	.040
MAY	.	.050	.	.020
JUN	.	.100	.	.
JUL	.	.100	.	.030
AUG	.	.100	.	.110
SEP	.	.100	.	.060
OCT	.	.120	.	.100
NOV	.	.060	.	.
DEC	.	.060	.	.080
FLD CHLORINE FREE ( )		**DET'N LIMIT = N/A**		**GUIDELINE = N/A**
JAN	.	.330	.	.080
FEB	.	.280	.	.240
MAR	.	.580	.	.160
APR	.	.100	.	.310
MAY	.	.300	.	.120
JUN	.	.350	.	.
JUL	.	.320	.	.030
AUG	.	.000	.	.020
SEP	.	.500	.	.200
OCT	.	.330	.	.100
NOV	.	.350	.	.
DEC	.	.260	.	.080
FLD CHLORINE (TOTAL) ( )		**DET'N LIMIT = N/A**		**GUIDELINE = N/A**
JAN	.	.420	.	.130
FEB	.	.360	.	.260
MAR	.	.650	.	.220
APR	.	.900	.	.350
MAY	.	.350	.	.140
JUN	.	.450	.	.050
JUL	.	.420	.	.060
AUG	.	.400	.	.130
SEP	.	.600	.	.260
OCT	.	.450	.	.200
NOV	.	.410	.	.
DEC	.	.320	.	.160

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
FLD PH (DIMENSLESS)			DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5(A4)
JAN	7.600	7.600	7.600	7.500
FEB	7.200	7.200	7.400	7.300
MAR	7.000	7.200	7.500	7.500
APR	7.700	7.600	7.600	7.600
MAY	8.000	7.600	7.800	7.600
JUN	8.000	7.800	8.000	8.000
JUL	8.000	7.400	7.600	7.400
AUG	7.900	7.200	7.400	7.600
SEP	7.700	7.300	7.600	7.400
OCT	7.900	7.700	7.800	7.800
NOV	7.700	7.800	7.800	7.600
DEC	.	.	7.400	7.000
FLD TEMPERATURE (DEG.C)			DET'N LIMIT = N/A	GUIDELINE = 15 (A1)
JAN	.500	.000	12.000	4.500
FEB	.	.	12.000	8.000
MAR	.500	.500	12.000	5.000
APR	5.000	5.000	16.000	8.000
MAY	7.000	7.000	14.000	11.000
JUN	12.000	12.000	20.000	17.000
JUL	17.000	15.500	21.000	19.000
AUG	15.500	15.000	21.000	20.000
SEP	12.000	12.000	19.000	18.000
OCT	11.000	11.000	16.000	14.000
NOV	4.000	4.000	15.000	10.000
DEC	.500	.500	15.000	8.000
FLD TURBIDITY (FTU)			DET'N LIMIT = N/A	GUIDELINE = 1.0 (A1)
JAN	1.900	.070	.	.520
FEB	20.000	.910	.	.250
MAR	5.500	.150	.560	.120
APR	3.100	.040	.	.090
MAY	1.200	.050	.200	.150
JUN	.800	.150	.	.200
JUL	2.000	.050	.	.100
AUG	4.200	.080	.	.080
SEP	1.600	.050	.	.260
OCT	3.800	.310	.	.
NOV	16.000	.050	.	.
DEC	5.800	.060	.	.120

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
CHEMISTRY (LAB)				
ALKALINITY (MG/L)			DET'N LIMIT = .200	GUIDELINE = 30-500 (A4)
JAN	97.600	93.800	94.200	93.700
FEB	102.700	86.700	89.800	87.800
MAR	103.700	89.500	90.200	91.300
APR	103.000	100.300	100.200	100.400
MAY	105.000	97.600	99.800	11$
JUN	103.100	100.300	.	100.000
JUL	101.200	87.300	88.100	89.900
AUG	100.500	91.200	91.700	91.800
SEP	101.800	94.600	94.300	94.500
OCT	101.500	99.100	99.700	99.400
NOV	102.500	99.800	99.400	100.000
DEC	92.300	96.100	95.500	95.600
CALCIUM (MG/L)			DET'N LIMIT = .100	GUIDELINE = 100 (F2)
JAN	39.800	40.200	40.200	40.800
FEB	43.200	41.000	42.200	43.400
MAR	43.600	43.200	42.800	43.400
APR	42.600	43.600	42.600	41.200
MAY	39.600	38.600	38.400	38.200
JUN	40.000	40.800	.	39.200
JUL	41.800	40.200	40.000	39.400
AUG	41.400	43.200	42.600	41.600
SEP	41.200	40.000	41.400	40.200
OCT	39.600	39.600	39.200	39.800
NOV	41.600	42.200	42.400	42.000
DEC	41.800	41.600	42.600	42.400
CHLORIDE (MG/L)			DET'N LIMIT = .200	GUIDELINE = 250 (A3)
JAN	23.600	24.400	25.100	25.800
FEB	25.600	26.500	26.000	26.200
MAR	26.900	27.900	26.100	25.800
APR	30.300	32.600	11$	30.600
MAY	25.400	26.600	25.900	11$
JUN	24.100	26.600	.	26.000
JUL	24.400	26.300	25.100	26.100
AUG	23.200	24.900	25.100	25.100
SEP	23.400	24.600	24.600	24.600
OCT	23.100	23.900	24.700	24.800
NOV	24.200	26.800	26.500	27.000
DEC	23.500	24.400	24.100	24.900

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CR/HSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
COLOUR (KIU)		DET'N LIMIT = .5		GUIDELINE = 5.0 (A3)
JAN	1.500 <T	.500 <T	1.000 <T	1.000 <T
FEB	1.000 <T	.500 <T	.500 <T	.500 <T
MAR	1.500 <T	.500 <T	.500 <T	1.000 <T
APR	2.500	1.000 <T	BDL	1.500 <T
MAY	1.500 <T	.500 <T	1.000 <T	118
JUN	2.000 <T	1.000 <T	.	1.500 <T
JUL	1.500 <T	BDL	1.000 <T	1.000 <T
AUG	2.000 <T	BDL	1.000 <T	1.000 <T
SEP	1.500 <T	.500 <T	.500 <T	.500 <T
OCT	2.500	1.500 <T	1.500 <T	1.500 <T
NOV	1.000 <T	.500 <T	.500 <T	.500 <T
DEC	.500 <T	.500 <T	.500 <T	.500 <T
CONDUCTIVITY (UMHO/CM)		DET'N LIMIT = 1		GUIDELINE = 400 (F2)
JAN	328	337	340	341
FEB	345	350	342	352
MAR	344	348	340	336
APR	371	374	369	367
MAY	352	341	338	118
JUN	333	336	.	334
JUL	331	337	336	337
AUG	330	336	341	337
SEP	329	333	330	332
OCT	329	327	330	329
NOV	335	341	338	343
DEC	340	336	340	340
FLUORIDE (MG/L)		DET'N LIMIT = .01		GUIDELINE = 2.400 (A1)
JAN	.100	.100	.120	.100
FEB	.140	.100	.080	.080
MAR	.150	.120	.140	.130
APR	.170	.150	.010 <T	.150
MAY	.130	.120	.130	118
JUN	.130	.140	.	.140
JUL	.130	.110	.100	.110
AUG	.130	.120	.110	.120
SEP	.140	.120	.120	.140
OCT	.140	.140	.140	.140
NOV	.140	.120	.140	.120
DEC	.120	.120	.120	.120
HARDNESS (MG/L)		DET'N LIMIT = .500		GUIDELINE = 80-100 (A4)

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
JAN	134.000	136.000	137.000	138.000
FEB	144.000	137.000	140.000	142.000
MAR	148.000	145.000	144.000	145.000
APR	144.000	146.000	143.000	136.000
MAY	133.000	130.000	130.000	129.000
JUN	134.000	136.000	.	132.000
JUL	140.000	135.000	135.000	133.000
AUG	139.000	143.000	143.000	140.000
SEP	138.000	133.000	138.000	136.000
OCT	132.000	132.000	131.000	133.000
NOV	138.000	140.000	141.000	141.000
DEC	139.000	138.000	141.000	140.000
TONCAL (DIMNSLESS)		DET'N LIMIT = N/A		GUIDELINE = N/A
JAN	.000 MAF	.000 MAF	.000 MAF	.000 MAF
FEB	.000 MAF	.000 MAF	.000 MAF	.000 MAF
MAR	.000 MAF	.000 MAF	.000 MAF	.000 MAF
APR	.000 MAF	.000 MAF	.000 MAF	.000 MAF
MAY	.000 MAF	.000 MAF	.000 MAF	.000 MAF
JUN	.000 MAF	.000 MAF	.000 MAF	.000 MAF
JUL	1.216	1.801	.315	3.434
AUG	1.661	3.082	2.056	.709
SEP	.328	3.058	.537	.690
OCT	3.959	2.625	4.205	2.746
NOV	.044	.637	2.555	.371
DEC	.997	.070	2.649	.287
LANGELIERS INDEX (DIMNSLESS)		DET'N LIMIT = N/A		GUIDELINE = N/A
JAN	.395 MAF	.281 MAF	.343 MAF	.407 MAF
FEB	.391 MAF	.005 MAF	.223 MAF	.155 MAF
MAR	.460 MAF	.061 MAF	.111 MAF	.183 MAF
APR	.504 MAF	.392 MAF	.492 MAF	.389 MAF
MAY	.422 MAF	.301 MAF	.258 MAF	.
JUN	.441 MAF	.327 MAF	.	.319 MAF
JUL	.412	.050	.162	.084
AUG	.485	.401	.336	.347
SEP	.408	.183	.247	.215
OCT	.520	.480	.458	.443
NOV	.405	.299	.280	.218
DEC	.081	.237	.224	.213
MAGNESIUM (MG/L)		DET'N LIMIT = .050		GUIDELINE = 30 (F2)
JAN	8.400	8.700	8.800	8.700

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
FEB	8.700	8.300	8.400	8.200
MAR	9.450	9.100	8.950	8.950
APR	9.200	9.000	8.800	8.000
MAY	8.300	8.200	8.300	8.200
JUN	8.100	8.200	.	8.200
JUL	8.600	8.500	8.500	8.300
AUG	8.700	8.400	8.700	8.700
SEP	8.500	8.100	8.400	8.600
OCT	7.900	8.100	8.100	8.200
NOV	8.400	8.400	8.500	8.600
DEC	8.400	8.300	8.400	8.400
SODIUM (MG/L)		DET'N LIMIT = .200		GUIDELINE = 200 (C3)
JAN	12.200	12.600	12.800	13.000
FEB	13.600	13.600	13.200	14.000
MAR	14.800	14.600	13.400	13.800
APR	16.600	16.000	16.000	15.200
MAY	13.200	13.200	12.800	13.000
JUN	11.600	11.800	.	11.800
JUL	13.000	13.000	13.200	13.000
AUG	12.200	12.400	12.400	12.200
SEP	11.800	12.000	12.200	12.400
OCT	12.400	12.400	12.400	12.600
NOV	12.600	13.000	13.400	13.000
DEC	12.000	12.400	12.400	12.600
AMMONIUM TOTAL (MG/L)		DET'N LIMIT = 0.002		GUIDELINE = .05 (F2)
JAN	.006 <T	.008 <T	.010	.008 <T
FEB	.020	.004 <T	.006 <T	.006 <T
MAR	.044	.028	.028	.016
APR	.182	.150	.160	.134
MAY	.038	.018	.018	115
JUN	.006 <T	.018	.	.016
JUL	.040	.006 <T	.012	.006 <T
AUG	.042	.008 <T	.094	.012
SEP	.030	.014	.014	.014
OCT	.042	.004	.006	.006
NOV	.002 <T	.004 <T	.006 <T	.004 <T
DEC	.010	.012	.014	.010
NITRITE (MG/L)		DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)
JAN	BDL	BDL	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
FEB	.008	.001 <T	.001 <T	.001 <T
MAR	.018	.013	.018	.008
APR	.014	.001 <T	.002 <T	.001 <T
MAY	.005	.001 <T	.002 <T	IIS
JUN	.088	.002 <T	.	.001 <T
JUL	.005	.001 <T	.002 <T	.001 <T
AUG	.009	.002 <T	.002 <T	.002 <T
SEP	.005	.003 <T	.002 <T	.003 <T
OCT	.013	.006	.007	.006
NOV	.007	.005	.005	.006
DEC	.004 <T	.004 <T	.004 <T	.004 <T
TOTAL NITRATES (MG/L)			DET'N LIMIT = .020	GUIDELINE = 10.000 (A1)
JAN	.400	.390	.415	.475
FEB	.440	.380	.355	.360
MAR	.450	.460	.430	.405
APR	.540	.540	.525	.525
MAY	.330	.325	.330	IIS
JUN	.405	.320	.	.295
JUL	.325	.325	.325	.355
AUG	.305	.300	.585	.305
SEP	.240	.235	.240	.230
OCT	.285	.295	.280	.275
NOV	.415	.390	.380	.385
DEC	.415	.425	.455	.445
NITROGEN TOT KJELD (MG/L)			DET'N LIMIT = .020	GUIDELINE = N/A
JAN	.200	.120	.160	.180
FEB	.230	.130	.140	.140
MAR	.210	.120	.150	.120
APR	.440	.370	IIS	.330
MAY	.230	.160	.180	IIS
JUN	.290	.200	.	.220
JUL	.330	.160	.170	.160
AUG	.320	.170	.340	.200
SEP	.300	.190	.200	.190
OCT	.290	.200	.220	.210
NOV	.350	.150	.160	.170
DEC	.260	.170	.170	.150
PH (DIMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5(A4)
JAN	8.250	8.150	8.210	8.270

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
FEB	8.190	7.900	8.090	8.020
MAR	8.250	7.920	7.970	8.030
APR	8.310	8.200	8.310	8.220
MAY	8.250	8.170	8.120	118
JUN	8.270	8.170	.	8.170
JUL	8.230	7.930	8.040	7.980
AUG	8.310	8.250	8.190	8.210
SEP	8.230	8.050	8.100	8.080
OCT	8.360	8.330	8.310	8.290
NOV	8.220	8.120	8.100	8.040
DEC	7.940	8.080	8.060	8.050
PHOSPHORUS FIL REACT (MG/L)		DET'N LIMIT = .0005		GUIDELINE = N/A
JAN	.001 <T	BDL	.	.
FEB	.009	.002 <T	.	.
MAR	.002	.001 <T	.	.
APR	.002 <T	.001 <T	.	.
MAY	.002	.002 <T	.	.
JUN	.007	.001 <T	.	.
JUL	.002 <T	.000 <T	.	.
AUG	.001 <T	.000 <T	.	.
SEP	.002 <T	.001 <T	.	.
OCT	.000	.000	.	.
NOV	.003	.000 <T	.	.
DEC	.001 <T	BDL	.	.
PHOSPHORUS TOTAL (MG/L)		DET'N LIMIT = .002		GUIDELINE = .40 (F2)
JAN	.020	.005 <T	.	.
FEB	.027	.002 <T	.	.
MAR	.022	BDL	.	.
APR	.024	.003 <T	.	.
MAY	.013	.002 <T	.	.
JUN	.014	.005 <T	.	.
JUL	.011	BDL	.	.
AUG	.028	BDL	.	.
SEP	.008 <T	.002 <T	.	.
OCT	.016	.007 <T	.	.
NOV	.039	BDL	.	.
DEC	.017	.002 <T	.	.
SULPHATE ( )		DET'N LIMIT = .200		GUIDELINE = 500. (A3)
JUL	28.150	39.380	37.850	36.820

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
AUG	27.610	35.430	35.340	35.260
SEP	27.300	32.700	32.400	32.500
OCT	28.410	28.250	28.070	28.340
NOV	26.500	27.000	26.500	27.300
DEC	38.180	31.540	31.170	33.650
TURBIDITY (FTU)		DET'N LIMIT = .02		GUIDELINE = 1.00 (A1)
JAN	1.440 UNH	.090 <T	.150	.200
FEB	24.000	.610	.140	.110
MAR	12.200	.090 <T	1.640	.110
APR	2.900	.080 <T	.180	.170
MAY	1.630	.110	.130	118
JUN	.420	.210	.	.150
JUL	1.360	.400	.720	.590
AUG	5.900	.470	.620	.360
SEP	1.530	.570	.810	.420
OCT	2.300	.590	.660	.700
NOV	.300	.250 <T	.410	.680
DEC	7.400	.350	.280	.470

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
METALS				
SILVER (UG/L)		DET'N LIMIT = .020		GUIDELINE = 50. (A1)
JAN	BDL	.020 <T	BDL	.020 <T
FEB	BDL	BDL	BDL	.090 <T
MAR	.020 <T	.020 <T	.040 <T	.020 <T
APR	BDL	BDL	BDL	.090 <T
MAY	BDL	BDL	BDL	BDL
JUN	BDL	BDL	.270 <T	.140 <T
JUL	BDL	.030 <T	.030 <T	.270 <T
AUG	BDL	BDL	BDL	BDL
SEP	.040 <T	.030 <T	.040 <T	.030 <T
OCT	BDL	BDL	BDL	BDL
NOV	BDL	BDL	BDL	.100 <T
DEC	BDL	BDL	BDL	BDL
ALUMINUM (UG/L)		DET'N LIMIT = .050		GUIDELINE = 100.(A4)
JAN	35.960	52.200	59.160	47.560
FEB	290.000	208.800	51.040	68.440
MAR	127.600	26.680	45.240	31.320
APR	33.640	73.080	70.760	68.440
MAY	16.240	127.600	127.600	150.800
JUN	10.788	127.600	243.600	197.200
JUL	30.160	55.680	60.320	73.080
AUG	99.760	95.120	81.200	83.520
SEP	69.600	97.440	116.000	127.600
OCT	30.160	70.760	106.720	116.000
NOV	208.800	85.840	102.080	78.880
DEC	1160.000	45.240	45.240	42.920
ARSENIC (UG/L)		DET'N LIMIT = 0.050		GUIDELINE = 50.0 (A1)
JAN	.820 <T	.300 <T	.170 <T	.250 <T
FEB	.680 <T	.170 <T	.100 <T	.160 <T
MAR	.800 <T	BDL	BDL	.130 <T
APR	.920 <T	.600 <T	.360 <T	.530 <T
MAY	.800 <T	.540 <T	.610 <T	.540 <T
JUN	.740 <T	.680 <T	.940 <T	1.000 <T
JUL	.330 <T	.240 <T	.190 <T	.610 <T
AUG	1.400	.420 <T	.450 <T	.590 <T
SEP	1.700	1.300	1.000 <T	1.100
OCT	1.200	1.200	.680 <T	.870 <T
NOV	.940 <T	.460 <T	.210 <T	.230 <T
DEC	.970 <T	.320 <T	.320 <T	.380 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
BARIUM (UG/L)		DET'N LIMIT = 0.020		GUIDELINE = 1000. (A1)
JAN	21.000	20.000	21.000	20.000
FEB	24.000	20.000	22.000	18.000
MAR	24.000	20.000	20.000	20.000
APR	23.000	22.000	22.000	23.000
MAY	24.000	23.000	23.000	22.000
JUN	26.000	26.000	27.000	26.000
JUL	22.000	22.000	22.000	24.000
AUG	24.000	23.000	23.000	23.000
SEP	22.000	21.000	21.000	22.000
OCT	24.000	24.000	23.000	23.000
NOV	28.000	25.000	24.000	23.000
DEC	24.000	22.000	23.000	22.000
BORON (UG/L)		DET'N LIMIT = 0.200		GUIDELINE = 5000. (A1)
JAN	25.000	26.000	26.000	27.000
FEB	24.000	24.000	27.000	23.000
MAR	31.000	29.000	27.000	28.000
APR	27.000	28.000	29.000	31.000
MAY	25.000	23.000	23.000	23.000
JUN	29.000	34.000	44.000	38.000
JUL	24.000	25.000	23.000	30.000
AUG	45.000	27.000	28.000	45.000
SEP	35.000	32.000	61.000	48.000
OCT	41.000	40.000	33.000	41.000
NOV	54.000	77.000	27.500	28.000
DEC	34.000	30.000	35.000	53.000
BERYLLIUM (UG/L)		DET'N LIMIT = 0.010		GUIDELINE = .20 (N)
JAN	BDL	BDL	BDL	BDL
FEB	.040 <T	.030 <T	.040 <T	.020 <T
MAR	BDL	.010 <T	BDL	BDL
APR	BDL	.030 <T	BDL	.020 <T
MAY	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL
JUL	BDL	BDL	BDL	BDL
AUG	.030 <T	BDL	.020 <T	BDL
SEP	BDL	BDL	.030 <T	.080 <T
OCT	.060 <T	.080 <T	.050 <T	BDL
NOV	.070 <T	.100 <T	BDL	BDL
DEC	.050 <T	.070 <T	.050 <T	.090 <T
CADMIUM (UG/L)		DET'N LIMIT = 0.050		GUIDELINE = 5.000 (A1)

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
JAN	BDL	.050 <T	.060 <T	BDL
FEB	.050 <T	BDL	BDL	BDL
MAR	.050 <T	.050 <T	.170 <T	BDL
APR	BDL	BDL	BDL	BDL
MAY	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL
JUL	BDL	BDL	BDL	.070 <T
AUG	BDL	BDL	BDL	BDL
SEP	BDL	BDL	BDL	BDL
OCT	BDL	BDL	BDL	BDL
NOV	BDL	BDL	BDL	BDL
DEC	BDL	BDL	.060 <T	.060 <T
COBALT (UG/L)		DET'N LIMIT = 0.020		GUIDELINE = 1000 (N)
JAN	.950	.960	.180 <T	.200 <T
FEB	.350 <T	.070 <T	.030 <T	.060 <T
MAR	.910	.200 <T	.270 <T	.170 <T
APR	.140 <T	.100 <T	.120 <T	.100 <T
MAY	.150 <T	.180 <T	.150 <T	.150 <T
JUN	.130 <T	.100 <T	.080 <T	.050 <T
JUL	.130 <T	.030 <T	.050 <T	BDL
AUG	.230 <T	.080 <T	.080 <T	.100 <T
SEP	.200 <T	.200 <T	.240 <T	.170 <T
OCT	.190 <T	.200 <T	.190 <T	.120 <T
NOV	.310 <T	.060 <T	.080 <T	.070 <T
DEC	.140 <T	.100 <T	.140 <T	.130 <T
CHROMIUM (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = 50. (A1)
JAN	.450 <T	.520 <T	.530 <T	.490 <T
FEB	.920 <T	.930 <T	1.500	.820 <T
MAR	.780 <T	.890 <T	.840 <T	.720 <T
APR	.710 <T	.750 <T	.630 <T	.420 <T
MAY	.460 <T	.600 <T	.490 <T	.380 <T
JUN	.690 <T	1.300	3.700	1.300
JUL	.420 <T	.540 <T	2.700	.540 <T
AUG	3.200	.450 <T	.800 <T	2.900
SEP	1.700	1.700	4.400	3.000
OCT	6.300	6.500	3.100	5.900
NOV	4.200	6.100	.590 <T	.700 <T
DEC	2.100	.770 <T	1.000 <T	2.800
COPPER (UG/L)		DET'N LIMIT = .100		GUIDELINE = 1000 (A3)
JAN	5.900	1.000	60.000	2.600

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
FEB	5.500	.840 <T	32.000	4.500
MAR	3.300	.790 <T	83.000	2.800
APR	3.800	1.300	22.000	3.100
MAY	9.500	.970 <T	17.000	2.100
JUN	6.800	.960 <T	15.000	2.500
JUL	9.800	.790 <T	19.000	2.700
AUG	8.500	.820 <T	15.000	2.500
SEP	6.800	1.100	20.000	2.900
OCT	7.300	.860 <T	6.500	2.000
NOV	5.400	1.000 <T	30.800	3.300
DEC	2.700	1.000 <T	55.000	3.400
IRON (UG/L)		DET'N LIMIT = 4.000		GUIDELINE = 300. (A3)
JAN	45.000	5.300 <T	9.800 <T	18.000 <T
FEB	520.000	28.000 <T	BDL	29.000 <T
MAR	230.000	6.600 <T	30.000 <T	41.000
APR	65.000	8.600 <T	15.000 <T	18.000 <T
MAY	16.000 <T	BDL	9.900 <T	28.000 <T
JUN	11.000 <T	BDL	12.000 <T	13.000 <T
JUL	27.000 <T	BDL	19.000 <T	20.000 <T
AUG	170.000	BDL	17.000 <T	24.000 <T
SEP	28.000 <T	BDL	8.400 <T	13.000 <T
OCT	43.000 <T	10.000 <T	8.400 <T	12.000 <T
NOV	410.000	BDL	7.600 <T	6.000 <T
DEC	98.000	8.800 <T	19.000 <T	32.000 <T
MERCURY (UG/L)		DET'N LIMIT = 0.010		GUIDELINE = 1.000 (A1)
JAN	.260	.230	.	.010
FEB	.180	.290	.	BDL
MAR	.340	.390	.	.010
APR	.010	.010	.	.020
MAY	.020 <T	BDL	.	BDL
JUN	BDL	.020 <T	.	BDL
JUL	.030 <T	.030 <T	.	.020 <T
AUG	.030 <T	.040 <T	.	.020 <T
SEP	.030 <T	.030 <T	.	.020 <T
OCT	.040 <T	.040 <T	.	.020 <T
NOV	.040 <T	.060	.	.020 <T
DEC	.060	.050 <T	.	.020 <T
MANGANESE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 50.0 (A3)
JAN	5.000	1.200	2.100	3.200

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
FEB	19.000	2.700	3.300	3.900
MAR	14.000	1.200	2.700	4.000
APR	8.100	1.700	4.000	4.600
MAY	4.500	.610	2.500	3.900
JUN	3.100	.740	2.500	2.500
JUL	3.100	BDL	4.100	4.900
AUG	15.000	.470 <T	4.500	7.000
SEP	4.100	.370 <T	1.800	3.300
OCT	9.400	1.900	2.500	3.000
NOV	35.000	.280 <T	2.200	2.300
DEC	8.500	.450 <T	2.400	3.500
MOLYBDENUM (UG/L)		DET'N LIMIT = 0.020		GUIDELINE = 500 (H)
JAN	1.000	1.200	1.100	1.100
FEB	.980	1.200	1.200	1.100
MAR	1.000	1.300	1.300	1.200
APR	1.200	1.300	1.400	1.400
MAY	1.200	1.300	1.100	1.100
JUN	1.200	1.200	1.400	1.300
JUL	1.200	1.100	1.200	1.400
AUG	.940	1.200	1.100	1.200
SEP	1.000	1.300	1.200	1.100
OCT	1.200	1.200	1.400	1.300
NOV	.870	1.200	1.090	1.200
DEC	1.100	1.200	1.200	1.300
NICKEL (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = 50. (F3)
JAN	2.100	1.900	2.300	2.200
FEB	1.200 <T	.330 <T	.860 <T	.140 <T
MAR	1.500	1.100 <T	1.900	.940 <T
APR	2.700	2.600	2.300	2.500
MAY	1.500 <T	1.400 <T	1.400 <T	1.600 <T
JUN	.440 <T	.560 <T	.300 <T	.160 <T
JUL	.490 <T	.170 <T	.280 <T	1.100 <T
AUG	.820 <T	BDL	BDL	.250 <T
SEP	.920 <T	.980 <T	.770 <T	.430 <T
OCT	2.100	2.100	2.400	1.700 <T
NOV	.530 <T	.210 <T	.320 <T	BDL
DEC	1.000 <T	1.000 <T	1.400 <T	1.200 <T
LEAD (UG/L)		DET'N LIMIT = 0.050		GUIDELINE = 50. (A1)
JAN	.400	.260	4.200	.180 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
FEB	.640	BDL	.620	.250
MAR	.450	.070 <T	25.000	.240
APR	.310	.040 <T	1.200	.190 <T
MAY	.560	.060 <T	2.000	.190 <T
JUN	.510	.130 <T	2.600	.230
JUL	.620	BDL	3.400	.270
AUG	.970	.040 <T	2.200	.250
SEP	.360	.420	2.400	.290
OCT	.450	.040 <T	.840	.180 <T
NOV	1.400	BDL	2.900	.250
DEC	.400	.060 <T	3.600	.260
ANTIMONY (UG/L)		DET'N LIMIT = .050		GUIDELINE = 146. (D4)
JAN	.210	.210	.250	.250
FEB	.200	.240	.320	.260
MAR	.260	.270	.380	.220
APR	.240	.250	.300	.310
MAY	.240	.170 <T	.280	.180 <T
JUN	.250	.210	.370	.260
JUL	.260	.220	.260	.380
AUG	.560	.580	.520	.560
SEP	.550	.680	.800	.620
OCT	.630	.670	.580	.620
NOV	.490	.660	.620	.740
DEC	.340	.320	.400	.380
SELENIUM (UG/L)		DET'N LIMIT = 0.200		GUIDELINE = 10. (A1)
JAN	.540 <T	.760 <T	.340 <T	.320 <T
FEB	.630 <T	1.400 <T	.620 <T	.970 <T
MAR	1.000 <T	1.300 <T	2.700 <T	3.200 <T
APR	.610 <T	.640 <T	.230 <T	1.600 <T
MAY	2.000 <T	2.100 <T	3.100 <T	3.000 <T
JUN	2.500 <T	1.400 <T	4.200 <T	4.000 <T
JUL	BDL	BDL	BDL	.540 <T
AUG	1.600 <T	1.600 <T	2.500 <T	2.100 <T
SEP	.350 <T	1.100 <T	2.000 <T	2.000 <T
OCT	BDL	1.000 <T	3.900 <T	2.600 <T
NOV	2.800 <T	4.100 <T	4.600 <T	5.000 <T
DEC	BDL	1.100 <T	1.400 <T	1.100 <T
STRONTIUM (UG/L)		DET'N LIMIT = .050		GUIDELINE = 2000.(H)
JAN	180.000	180.000	180.000	180.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
FEB	190.000	190.000	190.000	170.000
MAR	200.000	180.000	180.000	180.000
APR	200.000	200.000	200.000	210.000
MAY	200.000	200.000	190.000	190.000
JUN	190.000	190.000	200.000	200.000
JUL	160.000	160.000	160.000	190.000
AUG	190.000	170.000	170.000	170.000
SEP	190.000	190.000	180.000	180.000
OCT	190.000	190.000	200.000	190.000
NOV	180.000	190.000	178.000	180.000
DEC	180.000	180.000	180.000	180.000
TITANIUM (UG/L)		DET'N LIMIT = .050		GUIDELINE = N/A
JAN	5.900	4.800	4.200	4.600
FEB	13.000	5.600	5.000	4.900
MAR	6.700	3.000	3.100	3.100
APR	6.200	3.100	3.500	2.300
MAY	3.400	2.900	2.700	2.800
JUN	3.800	3.400	4.000	4.300
JUL	2.400	.960 <T	.590 <T	.880 <T
AUG	6.000	3.600	3.700	3.600
SEP	4.600	4.100	4.300	4.200
OCT	2.600	1.700 <T	1.800 <T	1.900 <T
NOV	10.000	4.200	3.600	4.100
DEC	5.400	3.400	3.500	3.500
THALLIUM (UG/L)		DET'N LIMIT = .010		GUIDELINE = 13. (D4)
JAN	.030 <T	.020 <T	.010 <T	.010 <T
FEB	.020 <T	.020 <T	.010 <T	.010 <T
MAR	.010 <T	.020 <T	.010 <T	BDL
APR	BDL	BDL	BDL	.030 <T
MAY	BDL	BDL	BDL	BDL
JUN	BDL	BDL	.080 <T	.040 <T
JUL	BDL	BDL	BDL	BDL
AUG	BDL	BDL	BDL	BDL
SEP	.020 <T	.020 <T	.020 <T	.030 <T
OCT	.020 <T	.020 <T	.030 <T	BDL
NOV	BDL	.020 <T	BDL	BDL
DEC	BDL	.030 <T	BDL	BDL
URANIUM (UG/L)		DET'N LIMIT = .020		GUIDELINE = 20. (A2)
JAN	.350	.290	.260	.280

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
FEB	.370	.100 <T	.180 <T	.160 <T
MAR	.360	.150 <T	.180 <T	.180 <T
APR	.320	.270	.270	.380
MAY	.340	.350	.320	.340
JUN	.400	.440	.520	.500
JUL	.350	.120 <T	.160 <T	.200 <T
AUG	.380	.210	.200 <T	.180 <T
SEP	.320	.250	.240	.260
OCT	.350	.320	.400	.350
NOV	.410	.280	.310	.280
DEC	.350	.200 <T	.230	.210
VANADIUM (UG/L)		DET'N LIMIT = .050		GUIDELINE = 100 (N)
JAN	.320 <T	.560	.500	.530
FEB	.810	1.100	.630	.670
MAR	.500	.830	.910	.750
APR	.410	.710	.720	.540
MAY	.300 <T	.500 <T	.510	.530
JUN	.230 <T	.220 <T	.440 <T	.370 <T
JUL	.360 <T	.890	.670	.730
AUG	.390 <T	.650	.520	.560
SEP	.410 <T	.800	.740	.750
OCT	.450 <T	.360 <T	.480 <T	.440 <T
NOV	.750	.280 <T	.380 <T	.280 <T
DEC	1.100	.560	.500 <T	.470 <T
ZINC (UG/L)		DET'N LIMIT = .001		GUIDELINE = 5000. (A3)
JAN	2.100	1.600	83.000	4.000
FEB	3.900	1.500	23.000	3.900
MAR	3.000	2.100	360.000	4.700
APR	3.500	1.900	21.000	3.700
MAY	3.400	1.600	28.000	2.200
JUN	2.400	1.600	26.000	3.000
JUL	3.500	2.600	47.000	3.200
AUG	3.700	1.200	21.000	1.900
SEP	2.300	1.900	34.000	2.900
OCT	2.000	.850 <T	8.000	1.300
NOV	5.000	1.100	24.000	5.400
DEC	2.200	1.300	77.000	3.600

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DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
PESTICIDES & PCB				
ALPHA BHC (NG/L)			**DET'N LIMIT = 1.000**	**GUIDELINE = 700 (C)**
JAN	3.000 <T	3.000 <T	.	3.000 <T
FEB	BDL	BDL	.	BDL
MAR	1.000 <T	1.000 <T	.	ILA
APR	1.000 <T	2.000 <T	.	3.000 <T
MAY	2.000 <T	2.000 <T	.	3.000 <T
JUN	BDL	BDL	.	BDL
JUL	1.000 <T	3.000 <T	.	2.000 <T
AUG	BDL	2.000 <T	.	2.000 <T
SEP	1.000 <T	2.000 <T	.	2.000 <T
OCT	2.000 <T	2.000 <T	.	2.000 <T
NOV	BDL	BDL	.	BDL
DEC	BDL	3.000 <T	.	2.000 <T
LINDANE (NG/L)			**DET'N LIMIT = 1.000**	**GUIDELINE = 4000 (A1)**
JAN	1.000 <T	BDL	.	1.000 <T
FEB	BDL	BDL	.	BDL
MAR	BDL	BDL	.	ILA
APR	1.000 <T	2.000 <T	.	3.000 <T
MAY	2.000 <T	BDL	.	1.000 <T
JUN	BDL	BDL	.	BDL
JUL	BDL	BDL	.	BDL
AUG	BDL	BDL	.	BDL
SEP	BDL	BDL	.	BDL
OCT	1.000 <T	1.000 <T	.	1.000 <T
NOV	BDL	BDL	.	BDL
DEC	BDL	BDL	.	BDL

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DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
PHENOLICS (UG/L)	PHENOLICS		DET'N LIMIT = 0.2	GUIDELINE = 2.00 (A3)
JAN	.600 <T	1.000 <T	.	.
FEB	.600 <T	.600 <T	.	.
MAR	BDL	BDL	.	.
APR	.600 <T	.600 <T	.	.
MAY	BDL	BDL	.	.
JUN	1.400	1.200	.	.
JUL	1.200	1.000 <T	.	.
AUG	2.000	1.000 <T	.	.
SEP	.600 <T	.800 <T	.	.
OCT	.400 <T	.400 <T	.	.
NOV	1.600	1.000 <T	.	.
DEC	1.000	1.000	.	.

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DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
VOLATILES				
BENZENE (UG/L)		**DET'N LIMIT = .050**		**GUIDELINE = 5.0 (B1)**
JAN	BDL	.050 <T	.	BDL
MAR	BDL	BDL	.	.050 <T
APR	BDL	.050 <T	.	BDL
MAY	BDL	BDL	.	BDL
JUN	BDL	BDL	.	BDL
JUL	.050 <T	.050 <T	.	BDL
AUG	BDL	BDL	.	BDL
SEP	BDL	BDL	.	BDL
OCT	BDL	BDL	.	BDL
NOV	BDL	BDL	.	BDL
DEC	BDL	BDL	.	BDL
TOLUENE (UG/L)		**DET'N LIMIT = .050**		**GUIDELINE = 24.0 (B4)**
JAN	BDL	.250 <T	.	.150 UCS
MAR	BDL	BDL	.	BDL
APR	BDL	.150 UCS	.	.100 UCS
MAY	BDL	.050 UCS	.	BDL
JUN	BDL	.100 <T	.	.100 <T
JUL	BDL	.100 <T	.	.050 <T
AUG	BDL	BDL	.	BDL
SEP	BDL	BDL	.	BDL
OCT	BDL	BDL	.	BDL
NOV	BDL	BDL	.	BDL
DEC	BDL	.050 <T	.	BDL
ETHYLBENZENE (UG/L)		**DET'N LIMIT = .050**		**GUIDELINE = 2.4 (B4)**
JAN	BDL	BDL	.	BDL
MAR	BDL	.100 <T	.	BDL
APR	BDL	.100 <T	.	.050 <T
MAY	BDL	.050 <T	.	.050 <T
JUN	BDL	.100 <T	.	.100 <T
JUL	BDL	.050 <T	.	.050 <T
AUG	BDL	.150 <T	.	.100 <T
SEP	.050 <T	.050 <T	.	.050 <T
OCT	.050 <T	.050 <T	.	.100 <T
NOV	BDL	.050 <T	.	.050 <T
DEC	BDL	.100 <T	.	BDL
P-XYLENE (UG/L)		**DET'N LIMIT = .100**		**GUIDELINE = 300 (B4)**
JAN	BDL	.100 <T	.	BDL

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DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT			DISTRIBUTION SYSTEM
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
MAR	BDL	BDL	.	BDL
APR	BDL	.	.	.
MAY	BDL	BDL	.	BDL
JUN	BDL	BDL	.	BDL
JUL	BDL	BDL	.	BDL
AUG	BDL	BDL	.	BDL
SEP	BDL	BDL	.	BDL
OCT	BDL	BDL	.	BDL
NOV	BDL	BDL	.	BDL
DEC	BDL	BDL	.	BDL
M-XYLENE (UG/L)		DET'N LIMIT = .100		GUIDELINE = 300 (B4)
JAN	BDL	.100 RMP	.	BDL
MAR	BDL	BDL	.	BDL
APR	BDL	.100 <T	.	.100 <T
MAY	BDL	BDL	.	BDL
JUN	BDL	BDL	.	BDL
JUL	BDL	BDL	.	BDL
AUG	BDL	.200 <T	.	.100 <T
SEP	BDL	BDL	.	BDL
OCT	BDL	BDL	.	.100 <T
NOV	BDL	BDL	.	BDL
DEC	BDL	BDL	.	BDL
O-XYLENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 300 (B4)
JAN	BDL	.050 <T	.	BDL
MAR	BDL	BDL	.	BDL
APR	BDL	.050 <T	.	.050 <T
MAY	BDL	BDL	.	BDL
JUN	BDL	BDL	.	BDL
JUL	BDL	.050 <T	.	BDL
AUG	BDL	.100 <T	.	.050 <T
SEP	.050 <T	BDL	.	BDL
OCT	BDL	BDL	.	BDL
NOV	BDL	BDL	.	BDL
DEC	BDL	BDL	.	BDL
STYRENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 46.5 (D2)
OCT	.300 <T	.450 <T	.	.600 UCS
NOV	BDL	.250 <T	.	BDL
DEC	.150 <T	.250 <T	.	.050 <T

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DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
METHYLENE CHLORIDE (UG/L)		DET'N LIMIT = .500		GUIDELINE = 1750 (D3)
JAN	3.000 UCS	6.000 UCS	.	4.000 UCS
MAR	BDL	BDL	.	BDL
APR	BDL	BDL	.	BDL
MAY	BDL	BDL	.	BDL
JUN	BDL	BDL	.	BDL
JUL	BDL	BDL	.	BDL
AUG	BDL	BDL	.	BDL
SEP	BDL	BDL	.	BDL
OCT	BDL	BDL	.	BDL
NOV	BDL	BDL	.	BDL
DEC	BDL	BDL	.	BDL
CHLOROFORM (UG/L)		DET'N LIMIT = .100		GUIDELINE = 350 (A1+)
JAN	BDL	2.500	.	1.500
MAR	BDL	13.600	.	7.900
APR	BDL	2.500	.	3.300
MAY	BDL	12.800	.	10.200
JUN	BDL	19.500	.	17.100
JUL	BDL	21.200	.	15.900
AUG	BDL	18.600	.	16.100
SEP	.700 <T	14.600	.	13.100
OCT	BDL	13.100	.	14.900
NOV	BDL	13.600	.	11.200
DEC	BDL	7.400	.	7.600
111, TRICHLOROETHANE (UG/L)		DET'N LIMIT = .020		GUIDELINE = 200 (D1)
JAN	BDL	BDL	.	BDL
MAR	BDL	BDL	.	BDL
APR	BDL	BDL	.	BDL
MAY	BDL	BDL	.	.100 <T
JUN	BDL	BDL	.	BDL
JUL	BDL	BDL	.	BDL
AUG	BDL	BDL	.	BDL
SEP	BDL	BDL	.	BDL
OCT	BDL	BDL	.	BDL
NOV	BDL	BDL	.	BDL
DEC	BDL	BDL	.	BDL
DICHLOROBROMOMETHANE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 350 (A1+)
JAN	BDL	3.650	.	2.750
MAR	BDL	12.400	.	9.100

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
APR	BDL	2.200	.	1.900
MAY	BDL	12.850	.	9.800
JUN	BDL	13.200	.	9.950
JUL	BDL	18.850	.	13.550
AUG	BDL	15.600	.	13.600
SEP	BDL	13.000	.	12.500
OCT	BDL	10.700	.	11.300
NOV	BDL	12.200	.	10.400
DEC	BDL	9.400	.	9.150
CHLORODIBROMOMETHANE (UG/L)		DET'N LIMIT = .100		GUIDELINE = 350 (A1+)
JAN	BDL	3.800	.	3.500
MAR	BDL	8.500	.	8.700
APR	BDL	1.000 <T	.	.700 <T
MAY	BDL	9.100	.	6.500
JUN	BDL	10.000	.	6.000
JUL	BDL	9.300	.	7.700
AUG	BDL	11.500	.	10.200
SEP	BDL	8.500	.	8.100
OCT	BDL	8.000	.	10.000
NOV	BDL	8.500	.	6.600
DEC	BDL	7.300	.	7.200
BROMOFORM (UG/L)		DET'N LIMIT = .200		GUIDELINE = 350 (A1+)
JAN	BDL	.400 <T	.	.400 <T
MAR	BDL	.600 <T	.	.800 <T
APR	BDL	BDL	.	BDL
MAY	BDL	.800 <T	.	.800 <T
JUN	BDL	.800 <T	.	.800 <T
JUL	BDL	.800 <T	.	.600 <T
AUG	BDL	.800 <T	.	.600 <T
SEP	BDL	.800 <T	.	1.000 <T
OCT	BDL	1.000 <T	.	1.000 <T
NOV	BDL	1.000 <T	.	.800 <T
DEC	BDL	1.200 <T	.	1.200 <T
TOTL TRIHALOMETHANES (UG/L)		DET'N LIMIT = .500		GUIDELINE = 350 (A1)
JAN	BDL	10.350	.	8.150
MAR	BDL	35.200	.	26.500
APR	BDL	5.700	.	5.900
MAY	BDL	35.550	.	27.300
JUN	BDL	43.500	.	33.850

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM GRIMSBY WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
JUL	BDL	50.150	.	37.750
AUG	BDL	46.500	.	40.500
SEP	.700 <T	36.900	.	34.700
OCT	BDL	32.800	.	37.200
NOV	BDL	35.300	.	29.000
DEC	BDL	25.300	.	25.150

Table 6

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
STANDARD PLATE COUNT MEMBRANE FILTRATION	CT/ML	0	500/ML(A1)
P/A BOTTLE		0	0 (A1*)
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100mL(A1)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
CHLOROAROMATICS			
HEXACHLOROBUTADIENE	NG/L	1.000	450. (D4)
1,2,3-TRICHLOROBENZIENE	NG/L	5.000	10000 (I)
1,2,3,4-TETRACHLOROBENZIENE	NG/L	1.000	10000 (I)
1,2,3,5-TETRACHLOROBENZIENE	NG/L	1.000	10000 (I)
1,2,4-TRICHLOROBENZIENE	NG/L	5.000	10000 (I)
1,2,4,5-TETRACHLOROBENZIENE	NG/L	1.000	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.000	10000 (D4)
HEXACHLOROBENZIENE	NG/L	1.0	10. (C1)
HEXACHLOROETHANE	NG/L	1.000	1900. (D4)
OCTACHLOROSTYRENE	NG/L	1.000	N/A
PENTACHLOROBENZIENE	NG/L	1.000	74000 (D4)
2,3,6-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,6,A-TRICHLOROTOLUENE	NG/L	5.000	N/A
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	50.	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	50.	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	50.	N/A
2,4,5-TRICHLOROPHENOL	NG/L	50.	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	50.	5000. (B1)
PENTACHLOROPHENOL	NG/L	50.	60000. (B1)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD PH	DMSNLESS	N/A	6.5-8.5(A4)
FIELD TEMPERATURE	^{o}C	N/A	<15 ^{o}C(A1)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	.200	30-500(A4)
CALCIUM	MG/L	.100	100. (F2)
CYANIDE	MG/L	.001	.20(A1)
CHLORIDE	MG/L	.200	250. (A3)
COLOUR	TCU	.5	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.	400. (F2)
FLUORIDE	MG/L	.01	2.4 (A1)
HARDNESS	MG/L	.50	80-100(A4)
MAGNESIUM	MG/L	.05	30. (F2)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
NITRITE	MG/L	.001	1.0 (A1)
TOTAL NITRATES	MG/L	.02	10. (A1)
NITROGEN TOTAL KJELDAHL	MG/L	.02	N/A
PH	DMSNLESS	N/A	6.5-8.5(A4)
PHOSPHORUS FIL REACT	MG/L	.0005	N/A
PHOSPHORUS TOTAL	MG/L	.002	.40(F2)
TOTAL SOLIDS	MG/L	1.	500. (A3)
TURBIDITY	FTU	.02	1.0 (A1)
METALS			
ALUMINUM	UG/L	.050	100. (A4)
ANTIMONY	UG/L	.050	146. (D4)
ARSENIC	UG/L	.050	50. (A1)
BARIUM	UG/L	.020	1000. (A1)
BORON	UG/L	.200	5000. (A1)
BERYLLIUM	UG/L	.010	0.20 (H)
CADMIUM	UG/L	.050	5.0 (A1)
COBALT	UG/L	.020	1000. (H)
CHROMIUM	UG/L	.100	50. (A1)
COPPER	UG/L	.100	1000. (A3)
IRON	UG/L	5.0	300. (A3)
MERCURY	UG/L	.01	1.0 (A1)
MANGANESE	UG/L	.050	50. (A3)
MOLYBDENUM	UG/L	.020	500. (H)
NICKEL	UG/L	.100	50. (F3)
LEAD	UG/L	.020	50. (A1)
SELENIUM	UG/L	.200	10. (A1)
SILVER	UG/L	.020	50. (A1)
STRONTIUM	UG/L	.100	2000. (H)
THALLIUM	UG/L	.010	13. (D4)
TITANIUM	UG/L	.100	N/A
URANIUM	UG/L	.020	20. (A2)
VANADIUM	UG/L	.020	100. (H)
ZINC	UG/L	.020	5000. (A3)
PHENOLICS			
PHENOLICS (UNFILTERED REACTIVE)	UG/L	.2	2.0 (A3)
PESTICIDES & PCB			
ALDRIN	NG/L	1.0	700. (A1)
AMETRINE	NG/L	50.	300000. (D3)
ATRAZINE	NG/L	50.	60000. (B3)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700. (G)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300. (G)
GAMMA HEXACHLOROCYCLOHEXANE(LINDANE)	NG/L	1.0	4000. (A1)
ALPHA CHLORDANE	NG/L	2.0	7000. (A1)
GAMMA CHLORDANE	NG/L	2.0	7000. (A1)
BLADEX	NG/L	100.	10000. (B3)
DIELDRIN	NG/L	2.0	700. (A1)
METHOXYCHLOR	NG/L	5.0	100000. (A1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000. (D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	4.0	74000. (D4)
ENDRIN	NG/L	4.0	200. (A1)
ENDOSULFAN SULPHATE(THIODAN SULPHATE)	NG/L	4.0	N/A
HEPTACHLOR EPOXIDE	NG/L	1.0	3000. (A1)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
HEPTACHLOR	NG/L	1.0	3000.	(A1)
METOLACHLOR	NG/L	500.	50000.	(B3)
MIREX	NG/L	5.0	N/A	
OXYCHLORDANE	NG/L	2.0	N/A	
O,P-DDT	NG/L	5.0	30000.	(A1)
PCB	NG/L	20.0	3000.	(A2)
O,P-DDD	NG/L	5.0	N/A	
PPDDE	NG/L	1.0	30000.	(A1)
PPDDT	NG/L	5.0	30000.	(A1)
ATRATONE	NG/L	50.	N/A	
ALACHLOR	NG/L	500.	35000.	(D2)
PROMETONE	NG/L	50.	52500.	(D3)
PROPAZINE	NG/L	50.	16000.	(D2)
PROMETRYNE	NG/L	50.	1000.	(B3)
SENCOR (METRIBUZIN)	NG/L	100.	80000.	(B2)
SIMAZINE	NG/L	50.	10000.	(B3)
POLYAROMATIC HYDROCARBONS				
PHENANTHRENE	NG/L	10.0	N/A	
ANTHRACENE	NG/L	1.0	N/A	
FLUORANTHENE	NG/L	20.0	42000.	(D4)
PYRENE	NG/L	20.0	N/A	
BENZO(A)ANTHRACENE	NG/L	20.0	N/A	
CHRYSENE	NG/L	50.0	N/A	
DIMETHYL BENZO(A)ANTHRACENE	NG/L	5.0	N/A	
BENZO(E)PYRENE	NG/L	50.0	N/A	
BENZO(B)FLUORANTHENE	NG/L	10.0	N/A	
PERYLENE	NG/L	10.0	N/A	
BENZO(K)FLUORANTHENE	NG/L	1.0	N/A	
BENZO(A)PYRENE	NG/L	5.0	10.	(B1)
BENZO(G,H,I)PERYLENE	NG/L	20.0	N/A	
DIBENZO(A,H)ANTHRACENE	NG/L	10.0	N/A	
INDENO(1,2,3-C,D)PYRENE	NG/L	20.0	N/A	
BENZO(B)CHRYSENE	NG/L	2.0	N/A	
CORONENE	NG/L	10.0	N/A	
SPECIFIC PESTICIDES				
TOXAPHENE	NG/L	N/A	5000.	(A1)
2,4,5-TRICHLOROBUTYRIC ACID (2,4,5-T)	NG/L	50.	280000.	(B1)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.	100000.	(A1)
2,4-DICHLORORPHENOXYBUTYRIC ACID	NG/L	200.	18000.	(B3)
2,4-D PROPIONIC ACID	NG/L	100.	N/A	
DICAMBA	NG/L	100.	87000.	(B3)
PICHLORAM	NG/L	100.	2450000.	(D3)
SILVEX (2,4,5-TP)	NG/L	50.	10000.	(A1)
DIAZINON	NG/L	20.	14000.	(A1)
DICHLOROVOS	NG/L	20.	N/A	
DURSBAN	NG/L	20.	N/A	
ETHION	NG/L	20.	35000.	(G)
GUTHION	NG/L	N/A	N/A	
MALATHION	NG/L	20.	160000.	(G)
MEVINPHOS	NG/L	20.	N/A	
METHYL PARATHION	NG/L	50.	7000.	(B3)
METHYLTRITHION	NG/L	20.	N/A	
PARATHION	NG/L	20.	35000.	(B1)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
PHORATE (THIMET)	NG/L	20.	35. (D2)
RELDAN	NG/L	20.	N/A
RONNEL	NG/L	20.	N/A
AMINOCARB	NG/L	N/A	N/A
BENOMYL	NG/L	N/A	N/A
BUX (METALKAMATE)	NG/L	2000.	N/A
CARBOFURAN	NG/L	2000.	18000. (D3)
CICP (CHLORPROPHAM)	NG/L	2000.	350000. (G)
DIALLATE	NG/L	2000.	30000. (H)
EPTAM	NG/L	2000.	N/A
IPC	NG/L	2000.	N/A
PROPOXUR (BAYGON)	NG/L	2000.	90000. (G)
SEVIN (CARBARYL)	NG/L	200.	70000. (A1)
SUTAN (BUTYLATE)	NG/L	2000.	245000. (D3)
VOLATILES			
BENZENE	UG/L	.050	5.0 (B1)
TOLUENE	UG/L	.050	24.0 (B4)
ETHYLBENZENE	UG/L	.050	2.4 (B4)
PARA-XYLENE	UG/L	.100	300. (B4)
META-XYLENE	UG/L	.100	300. (B4)
ORTHO-XYLENE	UG/L	.050	300. (B4)
1,1-DICHLOROETHYLENE	UG/L	.100	7.0 (D1)
ETHLYENE DIBROMIDE	UG/L	.05	50. (G)
METHYLENE CHLORIDE	UG/L	.500	1750. (D3)
TRANS-1,2-DICHLOROETHYLENE	UG/L	.100	350. (D3)
1,1-DICHLOROETHANE	UG/L	.100	N/A
CHLOROFORM	UG/L	.100	350. (A1+)
1,1,1-TRICHLOROETHANE	UG/L	.020	200. (D1)
1,2-DICHLOROETHANE	UG/L	.050	5.0 (D1)
CARBON TETRACHLORIDE	UG/L	.200	5.0 (D1)
1,2-DICHLOROPROPANE	UG/L	.050	10.0 (G)
TRICHLOROETHYLENE	UG/L	.100	5.0 (D1)
DICHLOROBROMOMETHANE	UG/L	.050	350. (A1+)
1,1,2-TRICHLOROETHANE	UG/L	.050	.60(D4)
CHLORODIBROMOMETHANE	UG/L	.100	350. (A1+)
TETRACHLOROETHYLENE	UG/L	.050	10.0 (C2)
BROMOFORM	UG/L	.200	350. (A1+)
1,1,2,2-TETRACHLOROETHANE	UG/L	.050	0.17(D4)
CHLOROBENZENE	UG/L	.100	1510. (D3)
1,4-DICHLOROBENZENE	UG/L	.100	5.0 (B1)
1,3-DICHLOROBENZENE	UG/L	.100	130. (G)
1,2-DICHLOROBENZENE	UG/L	.050	200. (B1)
TRIFLUOROCHLOROTOLUENE	UG/L	.100	N/A
TOTAL TRIHALOMETHANES	UG/L	.500	350. (A1)
STYRENE	UG/L	.05	46.5 (D2)